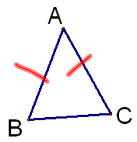
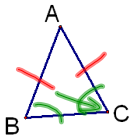
4.3 Isosceles and Equilateral Triangles

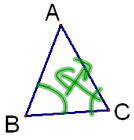


∠B and ∠C are called base angles

Theorem 4.3--The Isosceles Triangle Theorem--If AB = AC, then ∠C ≅ ∠B

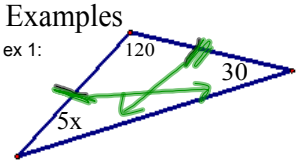


Theorem 4.4--The Converse of the Isosceles Triangle Theorem--If ∠C ≅ ∠B, then AB = AC



Examples

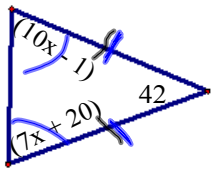
ex 1:



$5x = 30$

$x = 6$

ex 2:



$10x - 1 = 7x + 20$

$-7x \quad -7x$

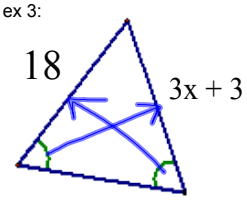
$3x - 1 = 20$

$+1 \quad +1$

$3x = 21$

$x = 7$

ex 3:



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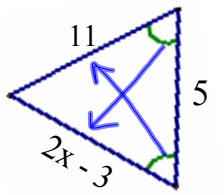
$3x + 3 = 18$

$3x = 15$

$x = 5$

ex 4:

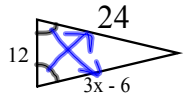


$2x - 3 = 11$

$2x = 14$

$x = 7$

ex 5:

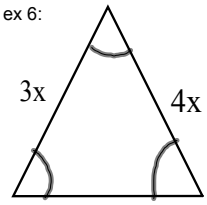


$3x-6=24$

$3x=30$

$x=10$

ex 6:



$3x=12$

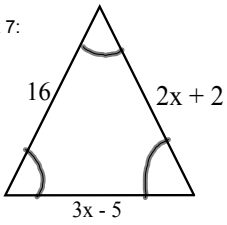
$x=4$

$4x-4=12$

$4x=16$

$x=4$

ex 7:

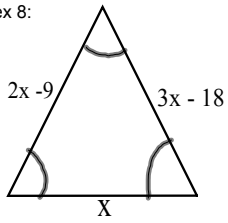


$2x+2=16$

$2x=14$

$x=7$

ex 8:



$2x-9=3x-18$

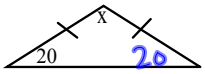
$-2x \quad -2x$

$-9=x-18$

$+18 \quad +18$

$9=x$

ex 9:



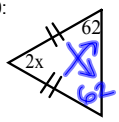
$x+20+20=180$

$x+40=180$

$-40 \quad -40$

$x=140$

ex 10:



$2x+62+62=180$

$2x+124=180$

$-124 \quad -124$

$2x=56$

$x=28$

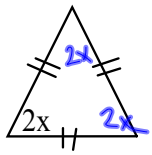
ex 11:

$x+x+3x=180$

$5x=180$

$x=36$

ex 12:



$6x=180$

$x=30$

Theorem 4.5--Equilateral Triangle Theorem--If a triangle is equilateral, then it is equiangular.

HW
p188-189
#s 7-15, 17-25

Theorem 4.6--Equiangular Triangle Theorem--If a triangle is equiangular, then it is equilateral.